US009636066B2

(12) **United States Patent**
IDrees

(10) **Patent No.: US 9,636,066 B2**
(45) **Date of Patent: May 2, 2017**

(54) **HEADBAND MONITORING SYSTEM**

(71) Applicant: **Umm Al-Qura University**, Makkah (SA)

(72) Inventor: **Yousef Marouf IDrees**, Makkah (SA)

(73) Assignee: **Umm Al-Qura University**, Makkah (SA)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **14/718,455**

(22) Filed: **May 21, 2015**

(65) **Prior Publication Data**

US 2016/0338636 A1 Nov. 24, 2016

(51) **Int. Cl.**

A61B 5/02	(2006.01)
A61B 5/00	(2006.01)
A63B 24/00	(2006.01)
A61B 5/024	(2006.01)
A41D 20/00	(2006.01)
A41D 1/00	(2006.01)

(52) **U.S. Cl.**

CPC ***A61B 5/486*** (2013.01); ***A61B 5/0022*** (2013.01); ***A61B 5/02438*** (2013.01); ***A61B 5/6803*** (2013.01); ***A61B 5/742*** (2013.01); ***A61B 5/746*** (2013.01); ***A61B 5/7455*** (2013.01); ***A63B 24/0062*** (2013.01); *A41D 1/002* (2013.01); *A41D 20/00* (2013.01); *A63B 2024/0068* (2013.01)

(58) **Field of Classification Search**

CPC A41D 1/002; A41D 20/00; A61B 5/486; A61B 5/0022; A61B 5/02438; A61B 5/6803; A61B 5/742; A61B 5/7455; A61B 5/746; A63B 24/0062; A63B 2024/0068

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,617,477	A	4/1997	Boyden	
5,953,434	A	9/1999	Boyden	
6,794,989	B2	9/2004	Naegely et al.	
7,394,912	B2	7/2008	Whipple	
8,043,173	B2	10/2011	Menalagha et al.	
8,804,992	B2	8/2014	Bailey	
2013/0072765	A1 *	3/2013	Kahn	A61B 5/01 600/301

(Continued)

Primary Examiner — Mallika D Fairchild

(74) *Attorney, Agent, or Firm* — Hauptman Ham, LLP

(57) **ABSTRACT**

A headband monitoring system comprises or consists of an elastic fabric headband for fitting around an individual's head over the individual's forehead, ears and lower back portion of the head. In addition, a pedometer, a heart rate monitor and a number of sensors for detecting number of steps taken and heartbeats in given periods of time and a mini-computer having an input mechanism, data storage, central processing unit and a clock/timer for calculating distance traveled in a given period. Finally, the system includes an individual's smartphone separately disposed from the headband and a Bluetooth transmitter disposed in the elastic fabric band and wirelessly connected to the smartphone for displaying heart rate, steps taken and distance traveled on the smartphone. Finally, a timer and vibrating alarm is disposed in said fabric band for warning an individual that their heart rate has exceeded a predetermined level and that it is time to reduce the exertion over a limited period of time before stopping the exercise.

1 Claim, 3 Drawing Sheets